Please cancel claims 19 – 42 *without prejudice.*

Please add new claims 43 – 67:

43. (New) The method of claim 18 wherein any of said ligands that comprises one or more aryl groups does not comprise more than 26 carbon atoms.

44. (New) The method of claim 18 wherein any of said ligands that does not comprise any aryl groups does not comprise more than 12 carbon atoms.

45. (New) The method of claim 44 wherein said at least one ligand has formula O_2CR wherein R is an organic group selected from the group consisting of alkyl, alkene and alkyne.

46. (New) The method of claim 45 wherein R is $(CH_2)_4CH_3$.

47. (New) The method of claim 17 wherein at least one of said ligands is a bidentate ligand selected from the group consisting of: β-diketonato, mono-thio-β-diketonato, dithiolene, salicyladehyde, benzalazine, ethane-1,2-dithiolato, ethane-1,2,-dioximate, and dithiocarboxylate.

48. (New) The method of claim 17 wherein at least one of said ligands comprises one or more linking moieties, selected from the group consisting of: azo, diazo, oxy, amino, vinylene, phenylene, substituted phenylene, oxime, carboxy, and imine.

49. (New) The method of claim 1 wherein said metal complex comprises two metal atoms bonded to one another.

50. (New) The method of claim 15 wherein at least one of said metal atoms is selected from the group consisting of: copper, nickel, platinum, palladium, ruthenium, rhenium, molybdenum, chromium, tungsten and iron.

52
51. (New) The method of claim 15 wherein at least one of said metal atoms is selected from the group consisting of: lead, mercury, tin, silicon and germanium.

53
52. (New) The method of claim 15 wherein at least one of said metal atoms is selected from the group consisting of: rhenium and ruthenium.

54
53. (New) The method of claim 15 wherein said absorption of said electromagnetic radiation places said metal complex in a ligand to metal charge transfer excited state in which a metal to ligand bond in said metal complex is unstable.

55
54. (New) The method of claim 15 wherein said absorption of said electromagnetic radiation places said metal complex in a metal to ligand charge transfer excited state in which a metal to ligand bond in said metal complex is unstable.

56
55. (New) The method of claim 15 wherein said absorption of said electromagnetic radiation places said metal complex in a d–d excited state such that a metal to ligand bond in said complex is unstable.

57
56. (New) The method of claim 15 wherein said absorption of said electromagnetic radiation places said metal complex in an intramolecular charge transfer excited state such that a metal to ligand bond in said complex is unstable.

58
57. (New) The method of claim 15 wherein said absorption of said electromagnetic radiation places at least one of said ligands in a localized ligand excited state wherein a bond between said excited ligand and said metal complex is unstable.

59
58. (New) The method of claim 1 wherein said exposing of said film to said electromagnetic radiation places said metal complex in an intramolecular charge transfer excited state such that at least one of said at least one ligands is unstable and decomposes.

59. (New) The method of claim 1 wherein said exposing of said film to said electromagnetic radiation places at least one of said ligands in a localized ligand excited state wherein said excited ligand is unstable and decomposes.

60. (New) The method of claim 1 wherein said exposing of said film to said electromagnetic radiation places said metal complex in a metal to ligand charge transfer excited state such that at least one of said at least one ligands is unstable and decomposes.

61. (New) The method of claim 1 wherein said exposing of said film to said electromagnetic radiation places said metal complex in a ligand to metal charge transfer excited state such that at least one of said at least one ligands is unstable and decomposes.

62. (New) The method of claim 1 additionally comprising repeating said applying, said exposing and said driving off for a second metal complex.

63. (New) The method of claim 62 wherein said second metal complex is applied on top of said first metal containing material.

64. (New) The method of claim 62 wherein said second metal complex is applied directly to said substrate.

65. (New) A method for making a pattern of a metal containing material on a substrate, said method comprising:

(a) applying a mesomorphous film of a metal complex on a surface of the substrate;

(b) exposing, in a first atmosphere, a first area, having a first shape, of said film to a first particle beam to cause said metal complex in said first area to be transformed into a first metal-containing material adherent to said substrate and one or more ligand byproducts of a first kind at least some proportion of which are driven off during the course of said photochemical reaction, wherein the pattern comprises the first shape;

(c) optionally driving off an unreacted amount of said metal complex and a remainder of said one or more ligand byproducts of a first kind that are not driven off during the course of said photochemical reaction;

(d) exposing, in a second atmosphere, a second area, having a second shape, of said film adjacent to said first area, to electromagnetic radiation of a wavelength suitable to cause said metal complex in said second area to undergo a photo-chemical reaction, said reaction transforming said metal complex in said second area into a second metal containing material adherent to said substrate and one or more ligand byproducts of a second kind at least some proportion of which are driven off during the course of said photochemical reaction; and optionally

(e) driving off an unreacted amount of said metal complex and a remainder of said one or more ligand byproducts of a second kind that are not driven off during the course of said photochemical reaction.

66. (New) The method of claim 65 wherein said particle beam is selected from a group consisting of an electron beam and an ion beam.

67. (New) A thin mesomorphous film on a substrate, wherein the film comprises a photoreactive precursor metal complex.